

PRIMARY USE: Remove sediment and other pollutants.
ADDITIONAL USES: Reduce flow and velocity of storm water.

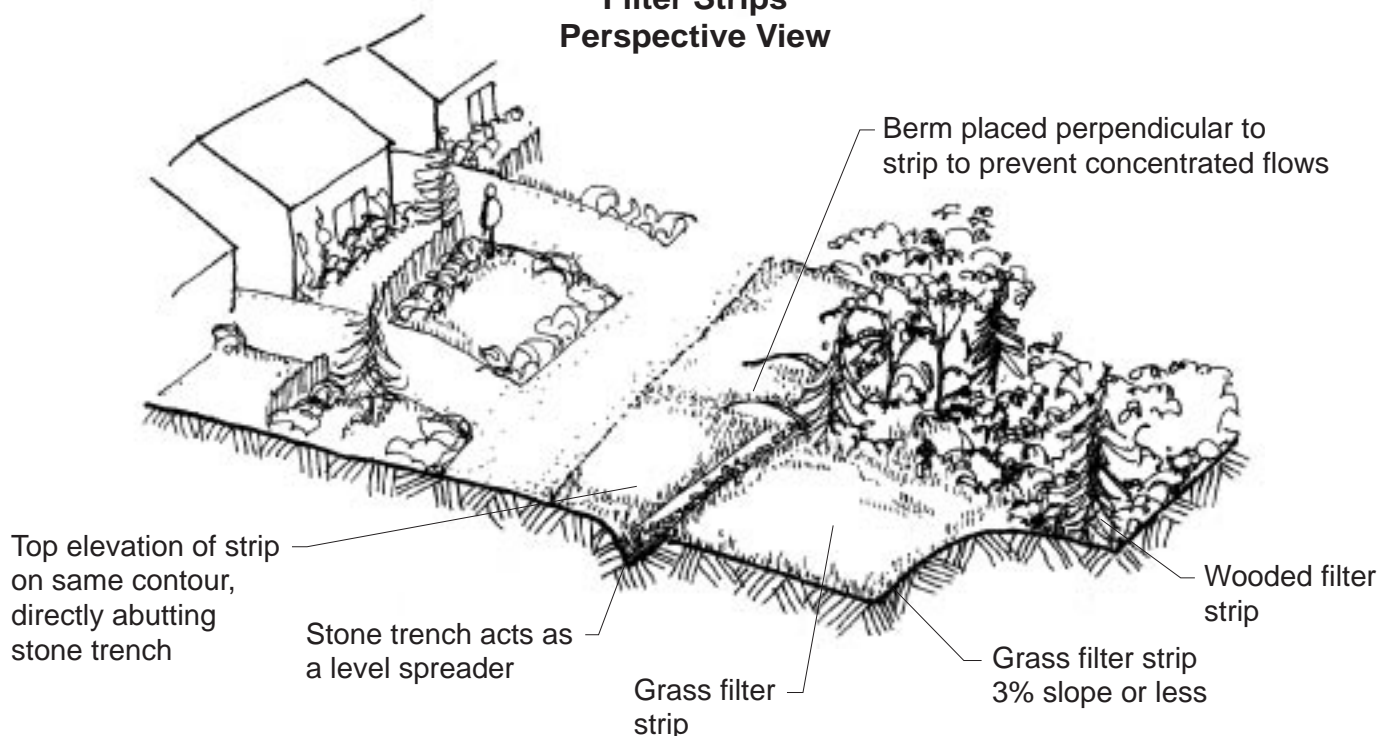
FILTER STRIPS

What is it? Gently sloping areas of natural vegetation or graded and artificially planted areas used to provide infiltration, remove sediments and other pollutants, and to reduce the flow and the velocity of storm water.

Purpose

To improve water quality by filtering runoff to remove sediment and associated insoluble contaminants, to allow increased infiltration opportunity time for soluble nutrients or pesticides to drain into the soil, to provide shade to watercourses to help maintain temperature norms of the water thereby protecting or providing habitat for aquatic life, and to provide sound barrier to or from outside areas (roads, factories, parks).

**Filter Strips
Perspective View**



Limitations

They are appropriate for predominantly sheet flow runoff. Soils should be reasonably well drained. Bedrock and the water table should be below the surface. Slopes should be less than 15 % to get filtering. Not appropriate for hilly or highly paved areas because of high velocity runoff.

Materials

Natural system using plants. Some earthwork may be required.

Installation

Filter strip must be at least 15 ft (4.5 m) wide to provide significant infiltration. The NRCS recommends significantly greater widths to enhance treatment. Forested strips are preferred to vegetated strips and existing vegetation is preferred to planted vegetation. Regular inspections are necessary. Sediment removal and replanting may be required.

Source: NRCS Planning and Design Manual, NRCS.

FILTER STRIPS

Additional Considerations:

Filter strips should be used in conjunction with all land disturbance activities adjacent to a perennial stream or permanent water body (double these distances for disturbed areas in municipal water supply watersheds).

Erosion Hazard of Soil	Recommended Buffer Zone Width		
	30 percent slope	40 percent slope	50 percent slope
Slight			160 feet 48 meters
Moderate		170 feet 52 meters	200 feet 62 meters
Severe	170 feet 52 meters	210 feet 65 meters	250 feet 77 meters

Planning Considerations

Filter strips will vary depending upon location and application. Separate criteria should be used for various forms of land disturbing activities: 1) activities adjacent to a perennial stream or permanent water body, 2) silvicultural operations, 3) construction or other land disturbing activities, 4) agricultural activities.

Design Criteria

1. General: Runoff from the disturbed areas should not be channeled into the filter strip but rather be allowed to spread out over the entire length. For concentrated flows, a level spreader may be required to allow for the proper functioning of the filter strip. Where a natural buffer zone is not available, or the required zone width is not attainable, provide flow barriers (diversions, sediment traps, vegetative planting, silt fences, etc.) as needed.
2. Activities Adjacent to a Perennial Stream or Permanent Water Body: This represents the most stringent requirement that applies to filter strips. The NRCS recommends that a 150 ft (45 m) buffer zone be left between the land disturbance activity and a water body. The zone width may be greater than 150 ft (45 m) depending upon the soil type and slope of adjacent land. The table (above) provides guidance for values greater than the minimum.
3. Construction or Other Land Disturbing Activities: For areas not adjacent to a permanent water body, a filter strip of 15 ft (4.5 m) will be maintained on the perimeter of the construction site. This buffer zone will: a) reduce runoff velocities, b) filter sediment from runoff, c) act as a screen for "vision pollution," d) reduce construction and adjacent noise levels, e) reduce dust problems, and f) improve aesthetics of the area.
4. The filter strip may be crossed by construction entrances, utilities construction, etc., but where natural vegetation is removed for these purposes, artificial buffer zone measures should be installed (e.g., construction entrance BMP, silt fence, diversion, etc.). These buffer zones should be incorporated into the design of the final post-construction landscape providing a permanent green strip on the perimeter of the completed project.

Maintenance - Filter strips tend to be low maintenance practices, but maintenance will increase as the volume of sediment and organic material increases. Where filter strips are utilized for construction activities, consideration should be given to appearance, ease of maintenance, appropriate species of vegetation, etc. The natural buffer zone may be reworked and replanted as part of the final landscape activities of a construction contract. Any use of chemicals adjacent to the filter strip must be applied in such a manner so as not to adversely affect the benefits of the filter strip.